

REMARKS/ARGUMENTS

Claims 1-25 were pending. Claims 1, 7-8, 11, and 17-18 have been amended. Claim 25 has been cancelled without prejudice or disclaimer of subject matter. New claims 26-45 have been added. Accordingly, upon entry of the instant amendment, claims 1-24 and 26-45 will be pending.

The Advisory Action dated July 7, 2004 noted that Claims 1-25 would be rejected because there would have been motivation to combine the McGregor reference (US 5,571,592) with the Largman reference (US 5,075,368). The Advisory Action also noted that the amendment filed June 28, 2004 in response to the Final Rejection dated April 28, 2004 had been entered. During the telephonic Examiner interview of August 12, 2004, Examiner Cole confirmed that the amendment filed in response to the Final Rejection had indeed been entered. Accordingly, the claims listed herein show changes relative to the claims presented in Applicant's response of June 28, 2004.

Examiner Interview

Applicant wishes to thank Examiner Cole for courtesies extended during a telephonic interview conducted on August 12, 2004. The lack of teaching or suggestion in the '368 patent to combine any other component, let alone microcells, with the fibers of Largman was discussed, together with the destruction of the fluid flow related functions (filtering, absorbing, and wicking of fluids) which would result if objects, such as expanded microcells, were incorporated within the channels of the Largman fibers. Further, the lack of teaching or suggestion in the '592 patent to use lobed fibers, or to otherwise trap microcells within individual fibers, in the material of McGregor was also discussed, together with numerous instances in which the McGregor reference teaches away from Applicant's invention. Nevertheless, no agreement was

reached as to the patentability of claims as previously presented. The Examiner indicated that narrow claims reciting the degree of expansion of the microcells, or features related to "unexpected results," might be patentable over the cited references.

Support for amended claims

Independent claims 1, 11, and 18 have been amended to recite that the microcell is entrapped internally within an individual fiber. Support for these amendments may be found, for example, at paragraph [0022] of the specification and Figure 2a.

Independent claim 17 has been amended to recite that the microcell is held internal to the fiber by adjacent T-shaped lobes of the lobed fiber. Support for this amendment may be found, for example, at paragraph [0022] of the specification and Figure 2a.

Support for new claims

Support for new claims 26 and 34 may be found, for example, at paragraph [0018] of the specification.

Support for new claim 27 may be found, for example, at paragraph [0032] of the specification.

Support for new claim 28 may be found, for example, at original claim 25.

Support for new claim 29 may be found, for example, at paragraph [0022] of the specification and Figure 2a.

Support for new claim 31 may be found, for example, at paragraph [0027] of the specification.

Support for new claim 32 may be found, for example, at paragraph [0016] of the specification.

Support for new claim 33 may be found, for example, at paragraph [0026] of the specification.

Support for new claim 36 may be found, for example, at paragraph [0022] of the specification and Figure 2a.

Support for new claim 39 may be found, for example, at paragraphs [0016] and [0027] of the specification.

Support for new claim 41 may be found, for example, at paragraph [0026] of the specification.

Support for new claim 42 may be found, for example, at paragraphs [0017] and [0022] of the specification, and Figure 2a.

Support for new claims 43-45 may be found, for example, at paragraph [0018] of the specification.

§103(a) Rejections

Largman et al. (US 5,075,368)

Largman discloses a thermoplastic polymer fiber having a lobed cross-sectional shape such that the fibers have a plurality of longitudinal channels.

The fiber of Largman is disclosed as having functions such as filtering, absorbing, and wicking of fluids (see, e.g., col. 10, lines 17-39).

In contrast to the present invention, the Largman reference does not teach or suggest combining fibers with another component. Thus, in contrast to the present invention, Largman does not teach or suggest a *composite material*. Therefore, Largman does not teach or suggest combining the polymer fibers with microcells. Accordingly, and in contrast to the present invention, Largman does not teach or suggest incorporating expandable microcells into lobed fibers wherein the microcells are disposed within an intra-fiber void of an individual fiber such that microcells are entrapped internally within the fibers, as set forth in amended claims 1, 11, 17, 18 and new claims 29, 35, and 42.

The fibers of Largman have an open structure with longitudinal channels. Functions disclosed in Largman, including filtering, wicking, and absorbing liquids, are dependent on fluid flow through the fibers. See, e.g., col. 10, lines 17-35. Functions of the Largman fibers related to fluid flow would be destroyed by entrapping expanded microcells within the channels of the fibers, as set forth in amended claims 1, 11, 17, 18 and new claims 29, 35, and 42. It is well established that a prima facie case of obviousness cannot be properly made based on modification of a reference where the intent, purpose, or function of the invention disclosed in the reference is destroyed.

McGregor et al.

McGregor discloses a multiple layered insulating material comprising microspheres in combination with *conventional* fibers, wherein the microspheres are retained within the insulating material, but *external* to the fibers, by various means, such as entanglement, barrier layers, quilting, and use of adhesives (see, e.g., Figures 1, 3, and 11 of McGregor).

In contrast to the present invention, the McGregor reference does not teach or suggest a composite material having microcells disposed *internally within individual fibers*, as claimed in amended claims 1, 11, and 18. In further contrast to the present invention, the McGregor reference does not teach or suggest use of fibers having surface projections or longitudinal lobes. Accordingly, McGregor cannot teach or suggest a material in which microcells are held between lobes of a lobed fiber, as claimed in amended claim 17. In still further contrast to the present invention, McGregor does not teach or suggest fibers having intra-fiber voids for occupation by microcells. Accordingly, McGregor cannot teach or suggest a material in which microcells occupy intra-fiber voids within a lobed fiber, as claimed in new claims 29 and 42.

Prior to the McGregor reference (and as stated therein), expandable microspheres had only been used in insulating materials when adhered together or to other materials using an *adhesive binder* (see, e.g., col. 2, lines 40-43 of McGregor). McGregor disclosed combining microspheres with *conventional* insulation (see, e.g., col. 4, lines 19-20) in various ways, such as by use of barrier layers, entanglement between fibers, and use of adhesives (see, e.g., col 12, lines 1-14 of McGregor).

In stark contrast to McGregor, the present invention combines expandable microcells with *lobed* fibers to form a completely novel and nonobvious type of insulating material, wherein expanded microcells are entrapped *internally within individual fibers*, wherein the microcells are held between an adjacent pair of longitudinal lobes of the fiber, as set forth in amended claims 1, 11, 17, 18 and new claims 29, 35, and 42. Accordingly, in the composite material of the present invention, microcells may be retained readily by the fibers themselves; and in the absence of retention means taught by McGregor, such as adhesives, barrier layers, etc. As noted in the instant

application (see, e.g., paragraph [0017]), microcell retention by intra-fiber voids of the fibers, according to the present invention, eliminates prior art disadvantages such as increased weight and density, reduced insulation and recoverability, and increased stiffness of insulating materials.

McGregor teaches away from Applicant's invention, for example, by teaching a barrier layer to retain microspheres in "... *virtually any form of existing insulation material* ..." (see, e.g., col. 3, lines 22-26 (emphasis added)). Clearly, the fibers of the present invention, wherein adjacent longitudinal lobes define intra-fiber voids, represent a highly specific form of fibers in which expandable microcells may be entrapped internally within individual fibers, as set forth in amended claims 1, 11, 17, 18 and new claims 29, 35, and 42. Existing or conventional fibers which lack adjacent longitudinal lobes and intra-fiber voids will not serve to entrap microcells internally within individual fibers as claimed by Applicant, for example, in claim 1 as amended.

McGregor further teaches away from Applicant's invention, for example, by stating that: "*The key to the ... invention is to retain microspheres within conventional insulation during normal use.*" (col. 4, 19-20 (emphasis added)). Applicant submits that the composite material of the present invention does not represent conventional insulation, but rather a completely novel and nonobvious form of insulating material.

It is well recognized that teaching away is the antithesis of suggesting Applicant's invention, and thus demonstrates a lack of prima facie obviousness.

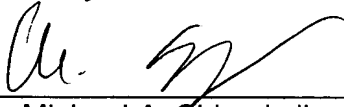
Accordingly, Applicant submits that claims 1-24 as amended and new claims 26-45 each define an invention which is unobvious over Largman and McGregor. Neither Largman nor McGregor, taken singularly or in combination, teach or suggest the specific combination recited in the claims.

CONCLUSION

Reconsideration and withdrawal of the rejection of claims 1-24 are requested. Applicant submits that claims 1-24 and 26-45 are now in condition for allowance.

In the event that the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

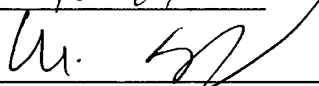
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